

Name: \_\_\_\_\_

**Manufacturing Technology/Technician****Directions:**

Evaluate the student by entering the appropriate number to indicate the degree of competency achieved.

**Rating Scale (0-6):**

- 0 No Exposure** – no experience/knowledge in this area; program/course did not provide instruction in this area  
**1 Unsuccessful Attempt** – unable to meet knowledge or performance criteria and/or required significant assistance  
**2 Partial Demonstration** – met some of the knowledge or performance criteria with or without minor assistance  
**3 Knowledge Demonstrated** – met knowledge criteria without assistance at least once  
**4 Performance Demonstrated** – met performance criteria without assistance at least once  
**5 Repeated Demonstration** – met performance and/or knowledge criteria without assistance on multiple occasions  
**6 Mastered** – successfully applied knowledge or skills in this area to solve related problems independently

0	1	2	3	4	5	6	A. Appreciate and apply all personal and workplace safety procedures	Notes:
							1. Apply national electrical code, Canadian Standards A, UL and other related and local codes.	
							2. Understand basic safety equipment.	
							3. Apply MSDS information to material use.	
							4. Demonstrate awareness of OSHA and its role in workplace safety.	
							Other:	

0	1	2	3	4	5	6	B. Interpret designs, drawings, and specifications	Notes:
							1. Read facility blue prints.	
							2. Read pneumatic charts.	
							3. Read communication/networking prints.	
							4. Read hydraulic charts.	
							5. Read electrical charts.	
							Other:	

0	1	2	3	4	5	6	C. Demonstrate basic CAD operations	Notes:
							1. Design a drawing.	
							2. Generate CNC code.	
							3. Post CNC code.	
							Other:	

0	1	2	3	4	5	6	D. Demonstrate basic CAM operations	Notes:
							1. Analyze CNC code.	
							2. Troubleshoot CNC equipment.	
							3. Document changes made.	
							4. Understand machine operations relating to CAM.	

							Other:	
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0	1	2	3	4	5	6	<b>E. Use and maintain hand tools consistent with industry and safety standards</b>	<b>Notes:</b>
							1. Demonstrate proper storage of tools.	
							2. Demonstrate ability to properly select and use tools.	
							3. Demonstrate ability to properly select and use measuring devices (e.g. calipers, meters, etc.).	
							4. Demonstrate understanding of machine operations.	
							5. Demonstrate critical thinking in use and care of hand tools associated with craft.	
							Other:	

0	1	2	3	4	5	6	<b>F. Perform preventative maintenance</b>	<b>Notes:</b>
							1. Conduct tests (e.g. initial startup/commissioning).	
							2. Demonstrate knowledge of importance of quality control.	
							3. Use quality control information to diagnose and analyze possible system malfunctions.	
							4. Understand machine operations.	
							5. Understand/initiate preventative maintenance cycle counts/hours upon failure.	
							6. Identify manufacturers' recommendations to comply with warranties.	
							7. Perform maintenance during scheduled outages of equipment.	
							8. Understand how the environment affects maintenance.	
							9. Understand the environment in which maintenance is conducted.	
							10. Understand use of proper lube cycle intervals.	
							11. Demonstrate critical thinking during the performance of preventative maintenance.	
							Other:	

0	1	2	3	4	5	6	<b>G. Coordinate with engineering services to design and layout work stations</b>	<b>Notes:</b>
							1. Analyze system requirements.	
							2. Determine resources available.	
							3. Understand ergonomics as applied to design and layout of work stations.	
							4. Understand workable operations.	
							5. Perform review of engineering document and layout.	
							Other:	

0	1	2	3	4	5	6	H. Maintain control systems and power distribution systems	Notes:
							1. Apply NEC as it applies to control systems and power distribution systems.	
							2. Demonstrate lock out tag out procedure.	
							3. Demonstrate removal of stored energy.	
							4. Determine root cause of failure.	
							5. Understand machine operations.	
							6. Design basic electrical ladder diagrams.	
							7. Distinguish between the analog and digital communication signals.	
							8. Demonstrate understanding of wire numbering system.	
							9. Demonstrate basic knowledge of normally-opened and normally-closed switches, gates, and valves.	
							10. Demonstrate wiring demonstrations.	
							11. Understand basic DC/AC conversion.	
							12. Demonstrate understanding of three phase power.	
							13. Install conduit boxes.	
							14. Demonstrate critical thinking in designing, implementing, and troubleshooting control systems and power distribution system.	
							Other:	

0	1	2	3	4	5	6	I. Apply basic electrical theory	Notes:
							1. Apply NEC as it applies.	
							2. Demonstrate lock out tag out procedure.	
							3. Demonstrate removal of stored energy.	
							4. Determine root cause of failure.	
							5. Design basic electrical ladder diagrams.	
							6. Design basic knowledge.	
							7. Demonstrate wiring demonstrations.	
							8. Understand basic DC/AC conversion.	
							9. Install conduit boxes.	
							10. Demonstrate critical thinking while completing basic electricity tasks.	
							Other:	

0	1	2	3	4	5	6	<b>J. Design/implement/troubleshoot automated systems PLCs</b>	<b>Notes:</b>
							1. Design basic ladder logic.	
							2. Connect and wire discrete input/output.	
							3. Setup, test, and configure controller for communications.	
							4. Analyze and predict sequence operations results of ladder logic diagrams.	
							5. Demonstrate ability to upload and download programs between the controller and computer.	
							6. Document changes made.	
							7. Demonstrate ability to simulate system operation to complete run logic.	
							8. Analyze hardware/software to find problems.	
							9. Connect and wire analog/digital signals.	
							10. Demonstrate critical thinking while designing, implementing and troubleshooting automated systems PLCs.	
							Other:	

0	1	2	3	4	5	6	<b>K. Design/implement/troubleshoot mechanical systems</b>	<b>Notes:</b>
							1. Align equipment.	
							2. Balance equipment.	
							3. Level equipment.	
							4. Calculate, demonstrate and size gears and gearboxes.	
							5. Calculate, demonstrate and size motor sheaves.	
							6. Define, measure, calculate torque.	
							Other:	

0	1	2	3	4	5	6	<b>L. Design/implement/troubleshoot fluid power systems</b>	<b>Notes:</b>
							1. Understand pump operations.	
							2. Understand basic valve configurations, mounting styles.	
							3. Disassemble, inspect, and replace defective valve assemblies.	
							4. Understand fluid contamination and control.	
							5. Demonstrate an understanding of desiccants and chillers.	
							6. Demonstrate critical thinking while designing, implementing, and troubleshooting fluid and pneumatic systems.	
							Other:	

0	1	2	3	4	5	6	<b>M. Demonstrate rigging and lifting techniques</b>	<b>Notes:</b>
							1. Understand rigging methods (e.g. tie points, shackling, center of gravity, weight distribution).	
							2. Demonstrate personal lifting techniques.	
							3. Demonstrate critical thinking while rigging and lifting.	
							Other:	

0	1	2	3	4	5	6	<b>N. Perform basic facility maintenance</b>	<b>Notes:</b>
							1. Understand HVAC system operation.	
							2. Resolve high/low suction discharge.	
							3. Identify sealed systems accessories.	
							4. Leak-test and evacuate system.	
							5. Comply with EPA guidelines.	
							6. Perform basic CAD tower system maintenance.	
							7. Repair/replace plumbing seals.	
							8. Unclog drains.	
							9. Demonstrate critical thinking while performing basic facility maintenance.	
							Other:	

0	1	2	3	4	5	6	<b>O. Demonstrate basic fabrication techniques</b>	<b>Notes:</b>
							1. Demonstrate fastening methods for wood.	
							2. Understand strength of wood.	
							3. Demonstrate cutting methods of metal.	
							4. Understand welding methods of metal.	
							5. Understand grinding of metal.	
							6. Understand different fastening techniques of metal.	
							7. Understand different weld positions and joint design.	
							8. Understand plastic tolerances and strengths.	
							9. Cut and drill plastics.	
							10. Demonstrate critical thinking while using basic fabrication techniques.	
							Other:	

0	1	2	3	4	5	6	<b>P. Demonstrate leadership skills in the classroom, industry, and society</b>	<b>Notes:</b>
							1. Demonstrate time management.	

								2. Demonstrate understanding of others' abilities.	
								3. Demonstrate interpersonal skills.	
								4. Demonstrate critical thinking.	
								5. Demonstrate an understanding of personal skills and abilities.	
								6. Demonstrate an understanding of one's personal style.	
								7. Develop and maintain professional ethics (e.g. responsibility of own's actions, self-motivation).	
								8. Maintain good professional appearance.	
								9. Perform basic tasks related to employment skills.	
								10. Make productive use of on-the-job spare time.	
								11. Demonstrate understanding of Skills USA/VICA, its structure and activities.	
								12. Demonstrate effectiveness in oral and written communication.	
								13. Perform basic parliamentary procedures in group meeting.	
								14. Demonstrate respect and understanding of the engineer's role.	
								Other:	

0	1	2	3	4	5	6	Q. Demonstrate entrepreneurial skills (optional)	Notes:
							1. Identify the potential for being outsourced employee.	
							2. Explain the fundamentals of liability insurance.	
							3. Identify types of company structures.	
							4. Explain when legal help is needed.	
							5. Demonstrate an understanding of business and personal taxes.	
							Other:	